

REMARKS

Favorable reconsideration of this application, as presently amended and in light of the following discussion, is respectfully requested.

Claims 1, 2, and 4-20 are currently pending. Claims 1, 2, and 4-7 have been amended; and Claim 3 has been cancelled without prejudice by the present amendment. The changes to the claims are supported by the originally filed specification and do not add new matter.

In the outstanding Office Action, Claim 1 was rejected under 35 U.S.C. § 102 as being anticipated by U.S. Patent No. 6,574,204 to Lee (hereinafter “the ‘204 patent”); Claim 6 was rejected under 35 U.S.C. § 103(a) as being unpatentable over the ‘204 patent in view of U.S. Patent No. 6,526,271 to Uesugi et al. (hereinafter “the ‘271 patent”); Claims 2-5 and 7-12 were objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form; and Claims 13-20 were allowed.

Applicants wish to thank the Examiner for the interview granted Applicants’ representative on August 20, 2004, at which time a proposed amendment to Claims 1 and 6 was discussed. However, no agreement was reached pending the Examiner’s further consideration of the claims upon formal submission of a response to the outstanding Office Action.

Amended Claim 1 is directed to an interference cancellation apparatus, applied in a CDMA communication system in which transmission rate information for each user in a plurality of users is known, and configured to sequentially cancel the interference among each of the users based on a rank of each user, the apparatus comprising: (1) a rank determination unit configured to determine the rank of each user, from a highest ranked user to a lowest ranked user, based on the known transmission rate information of each user, wherein the known transmission rate of each user is not detected by measuring signal power;

(2) a plurality of interference cancellation units, connected by at least a number of stages corresponding to a number of the users, wherein each interference cancellation unit is configured to perform interference cancellation based on a rank provided in each stage, and each interference cancellation unit is configured to detect the transmission rate information; and (3) a rank updating unit configured to update the rank to be used in interference cancellation units of a following stage based on the transmission rate information detected in each of the interference cancellation units. Claim 1 has been amended to incorporate the limitations recited in Claim 3. Accordingly, the changes to Claim 1 are supported by the originally filed specification and do not add new matter.

Applicants respectfully submit that the rejection of Claim 1 is rendered moot by the present amendment to that claim. In particular, Applicants note that Claim 1 has been amended to incorporate the limitations recited in Claim 3, which was indicated as allowable.

The '204 patent is directed to a method of canceling interference components included in a received signal at a base station in a mobile communication system. In particular, the '204 patent discloses that users are grouped into priority groups based upon known transmission rates. However, Applicants respectfully submit that the '204 patent fails to disclose a rank updating unit configured to update the rank to be used in interference cancellation units of a plurality of interference cancellation units of a following stage based on the transmission rate information detected in each of the interference cancellation units, as recited in amended Claim 1. Accordingly, Applicants respectfully submit that amended Claim 1 patentably defines over the '204 patent.

Amended Claim 6 is directed to an interference cancellation apparatus, applied in a CDMA communication system in which transmission rate information and required quality information for each user in a plurality of users is known, and configured to sequentially cancel the interference among each of the users based on a rank of each user, the apparatus

comprising a rank determination unit configured to estimate an incoming signal power for each user based on the known transmission rate information and the required quality information for each respective user and to determine the rank of each user, from a highest ranked user to a lowest ranked user, based on estimated incoming signal power.

Regarding the rejection of Claim 6, the Office Action asserts that that '204 patent discloses everything in Claim 6 with the exception of determining the rank of each user based on quality information for each user, and relies on the '271 patent to remedy that deficiency.

As discussed above, the '204 patent is directed to a method of canceling interference components included in a received signal at a base station in a mobile communication system. Further, the '204 patent discloses grouping of users into priority groups based on known transmission rates. However, as admitted in the Office Action, the '204 patent fails to disclose the ranking of users based upon the required quality information for each user, as recited in Claim 6. Further, Applicants submit that the '204 patent fails to disclose estimating an incoming signal power for each user based on the known transmission rate information and the required quality information for each user, as recited in amended Claim 6.

The '271 patent is directed to a method and apparatus for interference reduction. The '271 patent discloses that a transmission control section 801 selects a user with a high transmission rate or a user for which transmit power needs to be increased higher than that of a normal user, e.g., "a user with a high required user quality or a user with a high payment when the rate differentiation is performed."¹ However, Applicants respectfully submit that the '271 patent fails to disclose a rank determination unit configured to rank each of the users, from a highest ranked user to a lowest ranked user, based on an estimated incoming signal power for each user, wherein the estimated incoming signal power is based on the known transmission rate information and the required quality information for each user, as

¹ '271 patent, column 15, lines 36-38.

recited in amended Claim 6. Rather, Applicants submit that the '271 patent merely discloses the selection of a user based on transmission rate requirements or quality requirements.

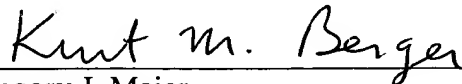
Thus, no matter how the teachings of the '204 and '271 patents are combined, the combination does not teach or suggest a rank determination unit configured to determine the rank of each user, from a highest ranked user to a lowest ranked user, based on an estimated incoming signal power for each user, wherein the estimated incoming signal power is based on the known transmission rate information and the required quality information for each user, as recited in amended Claim 6. Moreover, Applicants respectfully submit there is not a suggestion in either the '204 patent or '271 patent as to how both transmission rate information and quality information can be used to rank each of the users. Accordingly, Applicants respectfully submitted that the rejection of Claim 6 is rendered moot by the present amendment to Claim 6.

Thus, it is respectfully submitted that independent Claims 1 and 6 patentably define over any proper combination of the '204 and '271 patents.

Consequently, in view of the present amendment and in light of the above discussion, the outstanding grounds for rejection are believed to have been overcome. The application as amended herewith is believed to be in condition for formal allowance. An early and favorable action to that effect is respectfully requested.

Respectfully submitted,

OBLON, SPIVAK, McCLELLAND,
MAIER & NEUSTADT, P.C.



Gregory J. Maier
Attorney of Record
Registration No. 25,599
Kurt M. Berger, Ph.D.
Registration No. 51,461

Customer Number
22850

Tel: (703) 413-3000
Fax: (703) 413-2220
(OSMMN 08/03)

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